

CLAIMS

1. Aqueous coating compositions comprising
 - 5 A) at least one water-dilutable (meth)acrylate copolymer with a hydroxyl value of 200 to 280 mg KOH/g and
 - B) at least one polyisocyanate cross-linking agent with free isocyanate groups,
wherein the (meth)acrylate copolymers being the reaction product of
 - 10 a) 10-50 % by weight of at least one glycidyl ester derived from an aliphatic saturated monocarboxylic acid branched in alpha position,
 - b) 0-60 % by weight of at least one polyalkylene glycol(meth)acrylate,
 - c) 0-45 % by weight of at least one hydroxy-functional olefinic unsaturated monomer different from component b),
 - d) 3-40 % by weight of at least one olefinic unsaturated monocarboxylic acid,
 - 15 e) 0-40 % by weight of at least one vinyl aromatic monomer and
 - f) 0-40 % by weight of other olefinic unsaturated monomers different from monomers a) to e),wherein component d) is used in molar excess of component a) and the % by weight of components a) to f) adding up to 100%.
- 20 2. Aqueous coating compositions according to claim 1, wherein the (meth)acrylic copolymers having a hydroxyl number of 220 mg KOH/g to 280 mg KOH/g.
3. Aqueous coating compositions according to claim 1, wherein the (meth)acrylic copolymers having a hydroxyl number of 240 mg KOH/g to 270 mg KOH/g and an acid number of 25 to 55 mg KOH/g.

4. Aqueous coating compositions according to claim 1, wherein the (meth)acrylic copolymers having a number average molecular weight (M_n) of 1000 to 5000 and a weight average molecular weight (M_w) of 3000 to 40000.
5. Aqueous coating compositions according to claim 1, wherein the (meth)acrylate copolymers being the reaction product of
- a) 15-35 % by weight of at least one glycidyl ester derived from a branched aliphatic saturated monomer in alpha position,
- b) 10-40 % by weight of at least one polyalkylene glycol(meth)acrylate,
- c) 30-45 % by weight of at least one hydroxy-functional olefinic unsaturated monomer, different from component b),
- d) 7-20 % by weight of at least one olefinic unsaturated monocarboxylic acid,
- e) 0-40 % by weight of at least one vinyl aromatic monomer and
- f) 0-40 % by weight of other olefinic unsaturated monomers different from monomers a) to e),
- wherein component d) is used in molar excess of component a) and the % by weight of components a) to f) adding up to 100%.
6. Aqueous coating compositions according to claim 1, wherein component a) comprises a glycidyl esters of saturated alpha, alpha'-dialkylalkane-monocarboxylic acids with 9 to 11 C atoms in the acid molecule.
7. Aqueous coating compositions according to claim 1, wherein component b) comprises polyethylene glycol(meth)acrylates, polypropylene glycol(meth)acrylate or mixtures thereof.
8. Aqueous coating compositions according to claim 1, wherein the (meth)acrylic copolymers A) are produced by mass polymerization.
9. Aqueous coating compositions according to claim 1 comprising maximally 10 % by weight of organic solvents.

10. A multilayer coating comprising a transparent clear coating of the aqueous coating composition according to claim 1.
11. A multilayer coating comprising a solid-color topcoat of the aqueous coating composition according to claim 1.
- 5 12. A vehicle refinishing process comprising applying the coating composition according to claim 1.